

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) February 2014

Publications and Reports:

Langholtz MH, Eaton LM, Turhollow A, Hilliard MR. 2013 Feedstock Supply and Price Projections and Sensitivity Analysis. Biofuels Bioprod Biorefining-Biofpr. (Accepted with minor revisions)

ORNL Presentations:

Feb 5 – Keith Kline presented an overview of ORNL research and modeling approaches relevant to the “Vital Signs Trade-Offs Workshop” in Oxford, UK.

Feb 10 – During a technology session on Bioenergy Resources and Sustainability at the Agricultural Equipment Technology Conference, Feb 10-12 in Louisville KY, Esther Parish presented “Sustainability Metrics” and Maggie Davis delivered a talk on “International Standards on Sustainability.”

Feb 18 – Esther Parish and Zachariah Seiden presented recent research at the University of Tennessee’s 3rd Annual Watershed Symposium. Esther presented, “Designing Bioenergy Cropping Systems to Optimize Sustainability Objectives,” and Zachariah, “A Water Quality Model Comparison of Potential Impacts from Bioenergy Crop Land Conversations: Switchgrass versus Hardwood.”

February 24-28: Keith Kline presented, “Biomass, Bioenergy and Land Use” as invited speaker in the “Pathways to Climate Solutions: Assessing Energy Technology and Policy Innovation Workshop” organized by the Aspen Global Change Institute and Energy Innovation Policy and Technology, LLC.

Feb 25 – Virginia Dale gave a talk on “Incorporating Bioenergy into Sustainable Landscape Designs” at the National Institute for Mathematics and Biological Synthesis (NIMBioS) at the University of Tennessee, Knoxville.

Feb 27 - Natalie Griffiths gave an invited seminar at Indiana University's School of Public and Environmental Affairs titled 'Utilizing long-term experiments to examine the effects of human activities on hydrology and biogeochemical cycling'. The presentation discussed both the short-rotation woody biomass sustainability project and the SPRUCE project (Spruce and Peatland Responses Under Climatic and Environmental Change).

Forum of the Center for Bioenergy Sustainability (CBES)

Feb 17 – Dr. Andre Faaij and Dr. Floor van der Hilst from the Copernicus Institute of Sustainable Development, Utrecht University, Netherlands presented “*Assessing large scale effects of biofuels, including the European perspective*”. This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

Feb 5-7 – Keith Kline was invited to contribute to the Vital Signs Trade-Offs workshop to help assess options available to support more sustainable land management decisions. The workshop also aimed to improve communication of the trade-offs involved when intensification for food, fiber, bioenergy, etc. interacts with other social, environmental and economic aspects of sustainability. A paper is being developed and a report on the workshop was submitted to DOE on Feb 10th.

Feb 10-11 – Yetta Jager and Gangsheng Wang attended a meeting of the South Fork Watershed Alliance and presented research plans at a USDA-sponsored workshop to kick-off our multi-lab collaborative Pathways project in Ames, IA.

Feb 10 – 14 - Erin Webb and Mike Hilliard attended a week of training on the ExtendSim simulation software. ExtendSim is the software used to develop the Integrated Biomass Supply Analysis and Logistics Model (IBSAL). As a part of the course, they began initial designs for some biomass logistics models at the field and regional scale.

Feb 11-12 – Matt Langholtz and Laurence Eaton travelled to Washington for quarterly review.

Feb 17-18 – Dr. André Faaij and Dr. Floor van der Hilst from the Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands visited ORNL, hosted by Keith Kline and Maggie Davis, to discuss potential collaborations on integrated impact analysis of biomass production and application of sustainability metrics to the US forest sector in the Southeast. A team from Utrecht is assessing sustainability aspects of bioenergy expansion in Brazil under the Be-Basic Program, a public-private partnership aiming at building a sustainable bio-based economy in the EU.

Feb 18-19: Laurence Eaton attended the Yield mapping workshop on *Miscanthus x giganteus* which included participants from the Sungrant Project in Chicago, IL.

February 17-21 –Maggie Davis participated in meetings in Berlin Germany for developing the next iteration of the draft standard for ISO 13065, Sustainability Criteria for Bioenergy.

At the invitation of Chris Somerville, Virginia Dale has agreed to serve on the advisory committee for the Energy Biosciences Institute (EBI:www.energybiosciencesinstitute.org). EBI is a research institute of about 500 faculty, students, postdocs and staff located at UC Berkeley and University of Illinois Urbana-Champaign and supported by BP at about \$35M/year.

Upcoming ORNL Visits/Events:

March 4-6 – Dale and Kline worked with DOE’s Bioenergy Technologies Office (BETO), Argonne National Laboratory and the National Council on Air and Stream Improvement (NCASI) to host a workshop in New Bern, NC, on “Incorporating Bioenergy into Sustainable Landscape Designs.”

March 4-10 – Arnaldo Walter, a sustainability expert and professor from Unicamp in Campinas Brazil, will be hosted at ORNL by Kline and Davis to collaborate on common indicators for sustainable biofuel initiatives. Dr. Walter will also participate in the DOE Landscape Design Workshop (New Bern, NC).

March 8-9 – Floor van der Hilst and Judith Versteegem will visit ORNL to discuss collaborations to assess aspects of sustainability of bioenergy feedstock from the US Southeast forestry sector at landscape scales.

March 12 – Virginia Dale et al. will present a poster on “Bioenergy Sustainability” at the meeting of the Science Advisory Board of the ORNL Climate Change Science Institute.

March 12 – Natalie Griffiths et al. will present a poster on ‘Water quality in forested watersheds prior to and during conversion to short-rotation pine for bioenergy’ at the meeting of the Science Advisory Board of the ORNL Climate Change Science Institute.

March 17-April 15: Keith Kline will lead an international editing committee to assemble the next iteration of ISO 13065, Sustainability Criteria for Bioenergy, to be circulated for vote by the end of April.

May - Zachariah Seiden will speak on using SWAT to compare pine and switchgrass at the EWRI 2014 conference.

June 4-7 – Virginia Dale has been invited to be a guest speaker at the 4th Pan-American Congress on Plants and Bioenergy in Canada.

Oct 5-11 – Virginia Dale will participate at the International Union of Forest Research Organization meeting in Salt Lake City, Utah.